



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2009-0201; Directorate Identifier 2008-NE-47-AD]

RIN 2120-AA64

Airworthiness Directives; Thielert Aircraft Engines GmbH (TAE) Reciprocating Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to revise an existing airworthiness directive (AD) that applies to TAE models TAE 125-01 and TAE 125-02-99 reciprocating engines installed on, but not limited to, Diamond Aircraft Industries Model DA 42 airplanes. The existing AD currently requires initial and repetitive replacements of proportional pressure reducing valves (PPRVs) (also known as propeller control valves). Since we issued that AD, TAE has increased the life of the PPRV, part number (P/N) 05-7212-E002801, on TAE 125-02-99 engines, from 300 hours to 600 hours. This proposed AD would relax the repetitive replacement interval from a 300-hour interval to a 600-hour interval for PPRVs, P/N 05-7212-E002801, on TAE 125-02-99 engines. We are proposing this AD to prevent engine in-flight shutdown, possibly resulting in reduced control of the aircraft.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact Thielert Aircraft Engines GmbH, Platanenstrasse 14 D-09350, Lichtenstein, Germany; phone: +49-37204-696-0; fax: +49-37204-696-2912; e-mail: info@centurion-engines.com. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Alan Strom, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7143; fax: 781-238-7199; e-mail: alan.strom@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section.

Include “Docket No. FAA-2009-0201; Directorate Identifier 2008-NE-47-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On May 19, 2010, we issued AD 2010-11-09, Amendment 39-16314 (75 FR 32253, June 8, 2010), for TAE Models TAE 125-01 and TAE 125-02-99 reciprocating engines installed on, but not limited to, Diamond Aircraft Industries model DA 42 airplanes. That AD requires initial and repetitive replacements of PPRVs (also known as propeller control valves). That AD resulted from reports of in-flight shutdown (IFSD) incidents on Diamond Aircraft Industries DA 42 aircraft equipped with TAE 125 engines. Preliminary investigations showed that the IFSDs were mainly the result of failure of the PPRV. The European Aviation Safety Agency issued AD 2009-0224, dated October 20, 2009, to address this unsafe condition in Europe. We issued AD 2010-11-09 to prevent engine in-flight shutdown, possibly resulting in reduced control of the aircraft.

Actions Since Existing AD (75 FR 32253, June 8, 2010) Was Issued

Since we issued AD 2010-11-09, TAE performed a successful 600-hour endurance test of the PPRV, P/N 05-7212-E002801, for TAE 125-02-99 engines only, on a propeller test bench. The test also had the vibration isolator installed, which was introduced by AD 2010-11-09.

Relevant Service Information

We reviewed TAE Service Bulletin (SB) No. TM TAE 125-1007 P1, Revision 3, dated October 17, 2011. The SB relaxes the PPRV repetitive replacement interval from 300 hours to 600 hours.

FAA's Determination

We are proposing this AD revision, because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would retain all of the requirements of AD 2010-11-09 (75 FR 32253, June 8, 2010), except the repetitive replacement interval in paragraph (e)(2). This proposed AD would relax the repetitive 300-hour replacement interval to a 600 hour-interval.

Costs of Compliance

We estimate that this AD would affect about 300 TAE 125-01 and TAE 125-02-99 reciprocating engines installed in Diamond Aircraft Industries Model DA 42 airplanes of U.S. registry. We also estimate that it would take about 0.25 work-hour per engine to replace a PPRV and install a vibration isolator to the gearbox assembly. The average labor rate is \$85 per work-hour. Required parts would cost about \$275 per product. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$88,875.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing airworthiness directive (AD) 2010-11-09, Amendment 39-16314 (75 FR 32253, June 8, 2010), and adding the following new AD:

Thielert Aircraft Engines GmbH: Docket No. FAA-2009-0201; Directorate Identifier 2008-NE-47-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD revises AD 2010-11-09, Amendment 39-16314 (75 FR 32253, June 8, 2010).

(c) Applicability

This AD applies to Thielert Aircraft Engines GmbH (TAE) models TAE 125-01 and TAE 125-02-99 reciprocating engines designated with part number (P/N) 05-7200-K000301 or 02-7200-14017R1. The engines are installed on, but not limited to, Diamond Aircraft Industries Model DA 42 airplanes.

(d) Unsafe Condition

This AD was prompted by engine in-flight shutdown incidents reported on Diamond Aircraft Industries DA 42 airplanes equipped with TAE 125 engines. The investigations showed that it was mainly the result of failure of the proportional pressure reducing valve (PPRV) (also known as the propeller control valve) due to high vibrations. Since the release of European Aviation Safety Agency (EASA) AD 2008-0145, the

engine gearbox has been identified as the primary source of vibrations for the PPRV, and it has also been determined that failure of the electrical connection to the PPRV could have contributed to some power loss events or in-flight shutdowns. We are issuing this AD to prevent engine in-flight shutdown, possibly resulting in reduced control of the aircraft.

(e) Actions and Compliance

Unless already done, do the following actions.

(f) TAE 125-02-99 Reciprocating Engines

(1) For TAE 125-02-99 reciprocating engines with engine, P/N 05-7200-K000301, within 55 flight hours after the effective date of this AD:

(i) Replace the existing PPRV with PPRV, P/N 05-7212-E002801. Use paragraphs A. through B. of TAE Service Bulletin (SB) No. TM TAE 125-1007 P1, Revision 3, dated October 17, 2011, or SB No. TM TAE 125-1007 P1, Revision 2, dated April 29, 2009, to do the replacement.

(ii) Install a vibration isolator, P/N 05-7212-K022302, to the gearbox assembly. Use paragraphs 1 through 20 of TAE SB No. TM TAE 125-1009 P1, Revision 3, dated October 14, 2009, to do the installation.

(2) Repetitive PPRV Replacements

Thereafter, within every 600 flight hours, replace the PPRV, P/N 05-7212-E002801, with the same P/N PPRV.

(g) TAE 125-01 Reciprocating Engines

(1) For TAE 125-01 reciprocating engines with engine, P/N 02-7200-14017R1, within 55 flight hours after the effective date of this AD:

(i) Replace the existing PPRV with a PPRV, P/N NM-0000-0124501 or P/N 05-7212-K021401. Use paragraph 1 of TAE SB No. TM TAE 125-0018, Revision 1, dated November 12, 2008, to do the replacement.

(ii) Inspect the electrical connectors of the PPRV and replace the connectors if damaged, and install a vibration isolator, P/N 05-7212-K023801, to the gearbox assembly. Use paragraphs 1 through 27 of TAE SB No. TM TAE 125-0020, Revision 1, dated November 25, 2009, to do the inspection and installation.

(3) Repetitive PPRV Replacements

Thereafter, within every 300 flight hours, replace the PPRV with a PPRV, P/N NM-0000-0124501 or P/N 05-7212-K021401.

(h) FAA Differences

(1) We have found it necessary to not reference the second paragraph of the unsafe condition from the MCAI EASA AD 2009-0224. That sentence stated that the problem has only manifested itself on those TAE engines installed on Diamond Aircraft Industries DA 42 aircraft. The affected engines which require a PPRV could be used on other make and model airplanes in the future.

(2) We also did not reference the February 28, 2010 compliance date, which is in EASA AD 2009-0193R1, or the January 31, 2010 compliance date which is in EASA AD 2009-0224.

(i) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(j) Related Information

(1) Refer to EASA AD 2009-0224, dated October 20, 2009 (TAE 125-02-99), and EASA AD 2009-0193R1, dated December 1, 2009 (TAE 125-01), for related information.

(2) Contact Alan Strom, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA

01803; phone: 781-238-7143; fax: 781-238-7199; e-mail: alan.strom@faa.gov, for more information about this AD.

(3) For service information identified in this AD, contact Thielert Aircraft Engines GmbH, Platanenstrasse 14 D-09350, Lichtenstein, Germany, phone: +49-37204-696-0; fax: +49-37204-696-2912; e-mail: info@centurion-engines.com. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on November 10, 2011.

Peter A. White,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

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